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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/720,816      | 11/24/2003  | Thomas W. Stone      | 10010937-1          | 5361             |

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AGILENT TECHNOLOGIES, INC.  
Legal Department, DL 429  
Intellectual Property Administration  
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EXAMINER

CHIEM, DINH D

ART UNIT PAPER NUMBER

2883

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                     |  |
|------------------------------|--------------------------------------|-------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/720,816 | <b>Applicant(s)</b><br>STONE ET AL. |  |
|                              | <b>Examiner</b><br>Erin D Chiem      | <b>Art Unit</b><br>2883             |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

### DETAILED ACTION

The examiner would like to affirm that the applicant elected species I, which includes claims 1-10 and claim 11 is withdrawn without traverse.

#### *Claim Objections*

1. Claim 7 is objected to because of the following informalities: On the 4<sup>th</sup> line of claim 7, perhaps, applicant has omitted the word "port" in describing the "final output beam." With the inclusion of the word --port--, the claim is clearer. Appropriate correction is required.

#### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 2, 5, 7, 9, and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 2 recites the limitation "said at least one switchable **volume diffraction grating**" in the 4<sup>th</sup> line of claim 2. There is insufficient antecedent basis for this limitation in the claim. The examiner suggest to remove the lack of antecedent, applicant should move the citation on line 6, "wherein said at least one switchable diffraction grating comprises one switchable volume diffraction grating." to immediately following the word "comprising:"

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4. The lack of clarity in claim 5 is due to the recitation of "one switchable diffraction grating comprises two switchable volume diffraction gratings." The examiner would like to point out that the subset is larger than the set. The applicant needs to correct this clarity issue such that the claim is cleared.

5. Regarding claim 7, the lack of clarity is in the recitation of "final output beam" and "final output beam port" is rather confusing.

6. Regarding claim 9, and 10, the lack of clarity is in the recitation "at least one switchable volume diffraction grating comprises one switchable volume diffraction grating". The examiner would like to point out the redundancy is the reason for lack of clarity. The specification did not further explain how a switchable volume diffraction grating is a subset of a switchable volume diffraction grating. Perhaps applicant intended to recite a cascade of gratings **20** which have 3 switchable diffractive gratings (**20A**, **20b**, and **20C**). Similar to the recitation of US Patent 5, 771, 320, which has more clarity.

7. Appropriate correction is required for the aforementioned unclear claims.

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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9. Claim 1 – 4 and 8 rejected under 35 U.S.C. 102(e) as being anticipated by Agha Riza (US 6,563,974 B2). Claim 2 was rejected under 35 U.S.C. 112, second paragraph, the examiner interprets the claim to further limit the optical switch/variable attenuator of having “one switchable diffraction grating comprises one switchable volume diffraction grating.”

10. Regarding claim 1-4, Agha Riza teaches a switch/variable optical attenuator having a polarization beam displacing prism (BDP) used as a polarization separating sub-system, two switchable diffracting gratings, another BDP used as a polarization recombining sub-system. See Figure 5. BDP1 receives the input beam and split the beam in to two separate beams having the same polarization. Elements **52** and **54** switchable diffraction gratings. The diffractive efficiency is electrically controlled (col. 6, line 9-16). Between the two switchable diffraction gratings is a static grating **56**. And the two beams having the same polarization is recombined by passing through BDP2 and exit as one final output beam of combined polarization.

11. Furthermore, regarding the limitation of having a switchable volume grating in claim 2, Agha-Riza claimed of using a polymer-dispersed liquid crystal as a material to be used as macropixel in his invention. See claim 2.

12. Regarding claim 7, the examiner interpret the claim to be --wherein said at least one final output beam port comprises two final output beams --. This multiple output beam ports is taught in Agha-Riza's disclosure in column 8 line 67 to column 9 line 2. this multiple output ports implement is to increase routing flexibility.

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13. Regarding claim 8, in disclosing the structure of the switch/variable optical attenuator, Agha Riza also disclose the operation for providing variable attenuation of a beam.

14. Claims 5, 9, and 10 are not examined for the citation of "at least one switchable diffraction grating comprises two switchable volume diffraction gratings" is not understandable.

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agha Riza in view of Domash et al. (US 6, 567,573 B1). Agha Riza discloses a switch/variable attenuator having a polarization separating subsystem, a switchable diffraction grating, a static grating, another switchable diffraction grating, and a polarization recombining subsystem, respectively, but does not disclose having a transparent region within the static grating. Domash et al. disclose a transparent region in the static grating (col. 3, line 50 – 57). Although, Agha Riza does not explicitly disclose the static grating having a transparent region, but from Domash et al. thorough definition, a static grating may be a Bragg grating. When the Bragg grating is in a "switched-off state" or the state that is not diffracting, essentially what is left is a region

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of transparent optical material. Since Agha Riza and Domash et al. are both from the same field of endeavor, the purpose disclosed by Domash et al. would have been recognized in the pertinent art of Agha Riza. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to see that a transparent region in a static grating is simply a state in which the grating is not diffracting.

### ***Conclusion***

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sutherland et al. (US 2001/0033400 A1) teach the same concept of implementing polymer-dispersed liquid crystal as a switch/attenuator.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin D Chiem  
Examiner  
Art Unit 2883

EDC



Frank G. Font  
Supervisory Patent Examiner  
Technology Center 2800